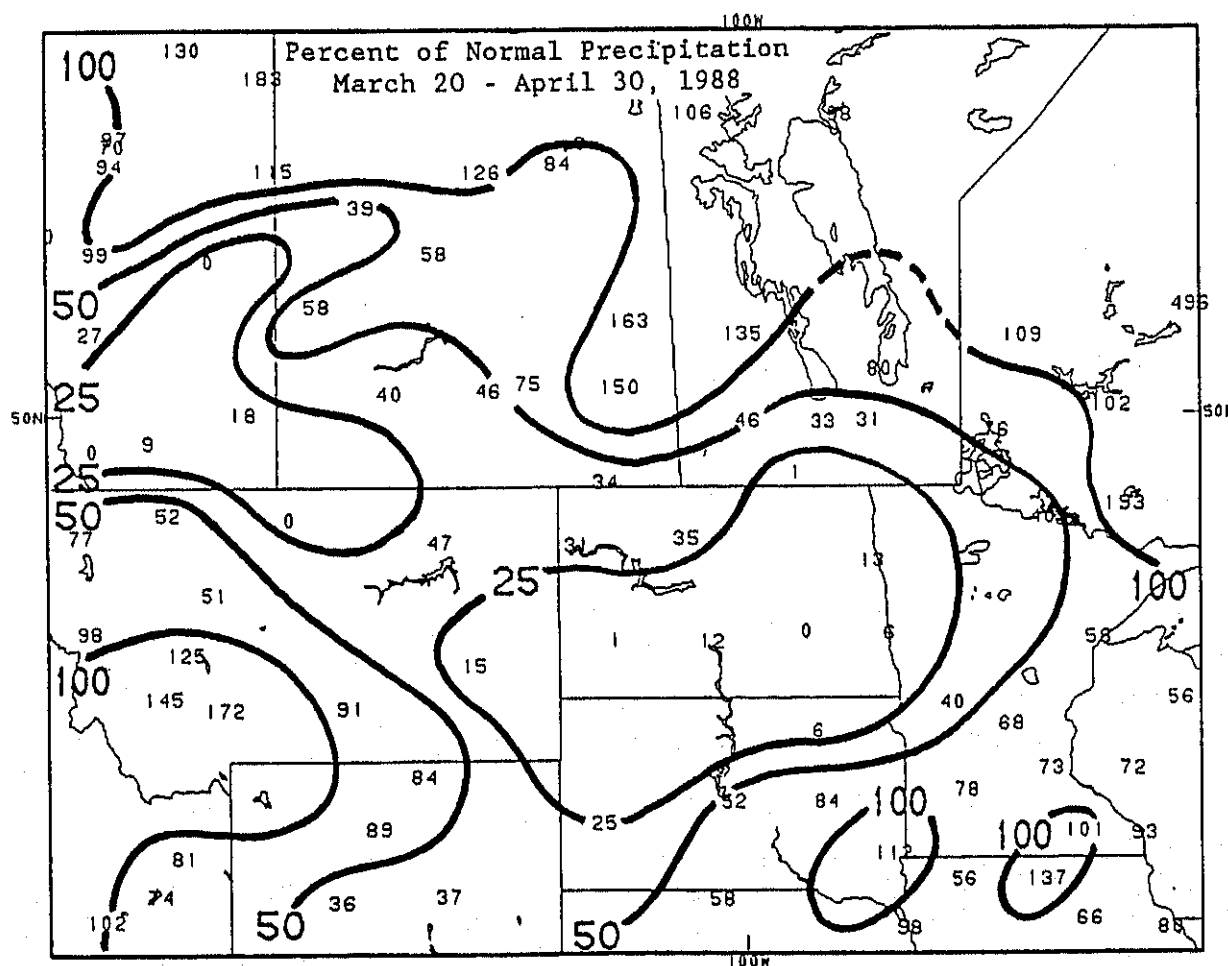


WEEKLY CLIMATE BULLETIN

No. 88/18

Washington, DC

April 30, 1988



PRECIPITATION NORMALLY INCREASES IN THE SPRING AND REACHES A MAXIMUM DURING THE SUMMER MONTHS IN THE NORTHERN GREAT PLAINS, UPPER MIDWEST, AND SOUTHERN CANADA. SO FAR THIS SPRING, HOWEVER, PRECIPITATION HAS BEEN RATHER DEFICIENT THROUGHOUT MOST OF THE AREA AS THE GROWING SEASON GETS UNDERWAY. REFER TO THE SPECIAL CLIMATE SUMMARY FOR FURTHER DETAILS.

NOAA - NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week. .
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

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NOAA, National Weather Service
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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATE EVENTS AND ANOMALIES AS OF OCTOBER 10, 1992

1. Western Alaska:

COLD AIR RETREATS.

Temperatures returned to near normal in most areas; however, some stations in southwestern Alaska reported departures approaching -4°C [Ending at 14 weeks].

2. Western United States:

WARM AND DRY WEATHER CONTINUES.

The 1992–1993 water year got off to a slow start in northern California, western Oregon, and western Washington, where precipitation was below normal during the past few weeks. Additionally, temperatures averaged as much as 5°C above normal in parts of California, with readings topping 30°C northward into Oregon [3 weeks].

3. Southeastern France and Northern Italy:

MORE STORMS BATTER REGION.

Nearly 200 mm of rain inundated some locations as powerful storms ravaged the region. According to press reports, several centimeters of water covered low-lying areas of Venice [2 weeks].

4. Bulgaria and Western Turkey:

ABNORMALLY DRY WEATHER PERSISTS.

Generally less than 10 mm of precipitation fell in the area as six-week moisture deficits approached 70 mm at some locations. Farther west, however, moderate to heavy rains (50 to 100 mm) ended the dryness in southern former Yugoslavia [27 weeks].

5. Eastern Turkey and Western Iran:

COLD CONDITIONS SHIFT EASTWARD.

Temperatures averaged as much as 6°C below normal as unusually cold conditions shifted eastward into Iran [3 weeks].

6. Western Sahel:

STILL DRY.

Little or no precipitation fell on most of the region; however, short-term deficits declined slightly as the region's normally dry time of year approached [Ending at 12 weeks].

7. Vietnam:

HEAVY RAINS CAUSE FLOODING.

Torrential rains of 500 to 590 mm caused severe flooding. Thousands were left homeless as flood waters damaged property and crops, according to press reports [Episodic Event].

8. Southeastern China:

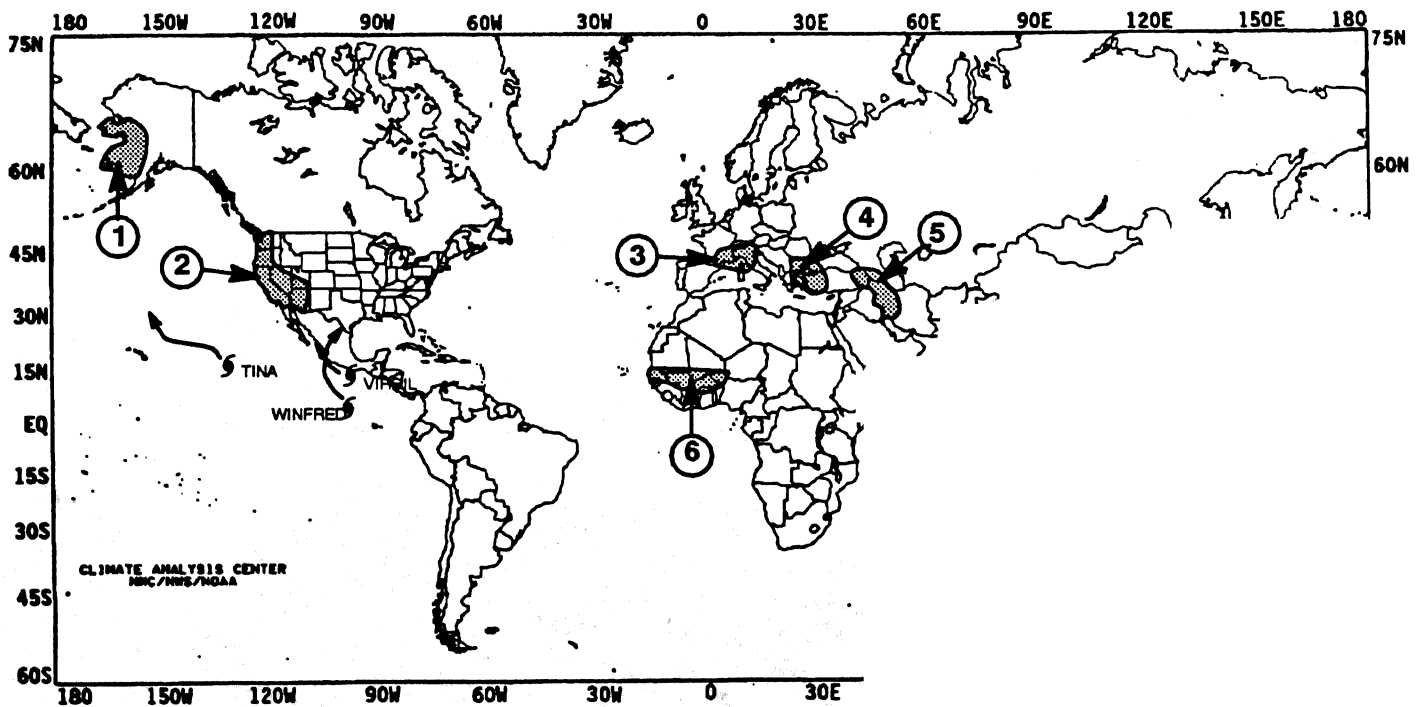
MORE DRY WEATHER.

Isolated locations received as much as 90 mm of rain, but most of the region measured under 10 mm, allowing six-week moisture deficits to climb towards 135 mm [14 weeks].

9. Southeastern Australia:

WET WEATHER DEVELOPS.

Since early August, unusually heavy precipitation (weekly totals of 30 to 90 mm) has periodically drenched the area. Beginning in mid-September, above normal totals have been reported for several consecutive weeks [4 weeks].



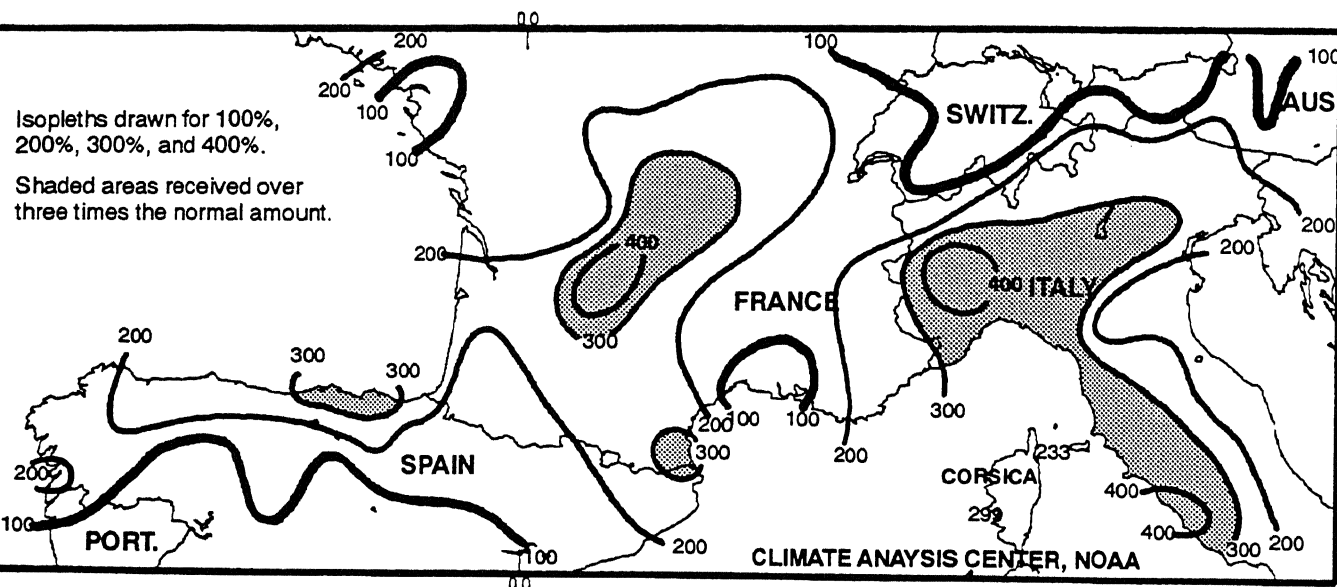
EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature anomalies, four week precipitation anomalies, long-term anomalies, and c

GLOBAL CLIMATE HIGHLIGHTS FEATURE

PERCENT OF NORMAL PRECIPITATION

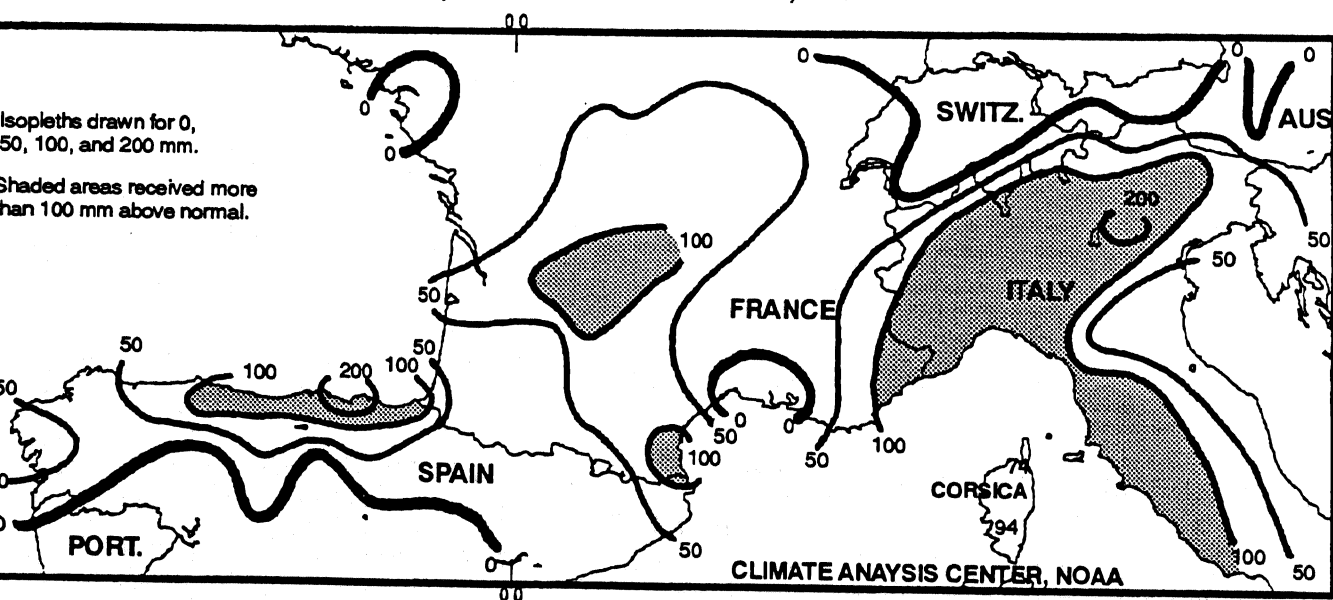
September 20 – October 10, 1992



THIRD SUCCESSIVE WEEK OF HEAVY RAINS ACROSS SOUTH-CENTRAL AND SOUTHWESTERN EUROPE GENERATES FLOODING THROUGH NORTHERN SPAIN AND NORTHERN ITALY. Weekly totals of 100–150 mm fell from northern Spain eastward across southern France and northern Italy, generating coastal flooding that sent major rivers out of their banks in northern Spain and Italy. According to press reports, periodic flooding took over a dozen lives during the week in central and northern Italy, and inundating rains coincided with high tide to produce flooding that cut train service along the northern coast of Spain. During September 20 – October 10, 1992, many locations in northern Spain received 100–285 mm, scattered totals of 100–210 mm soaked central and southern France, and 110–230 mm drenched most of central and northern Italy, where isolated locations received as much as 350 mm. These totals represent more than three times the normal for the period (and surpluses of approximately 100–210 mm) in west-central and northern Italy, parts of northern Spain, and portions of southern and central France.

DEPARTURE FROM NORMAL PRECIPITATION (MM)

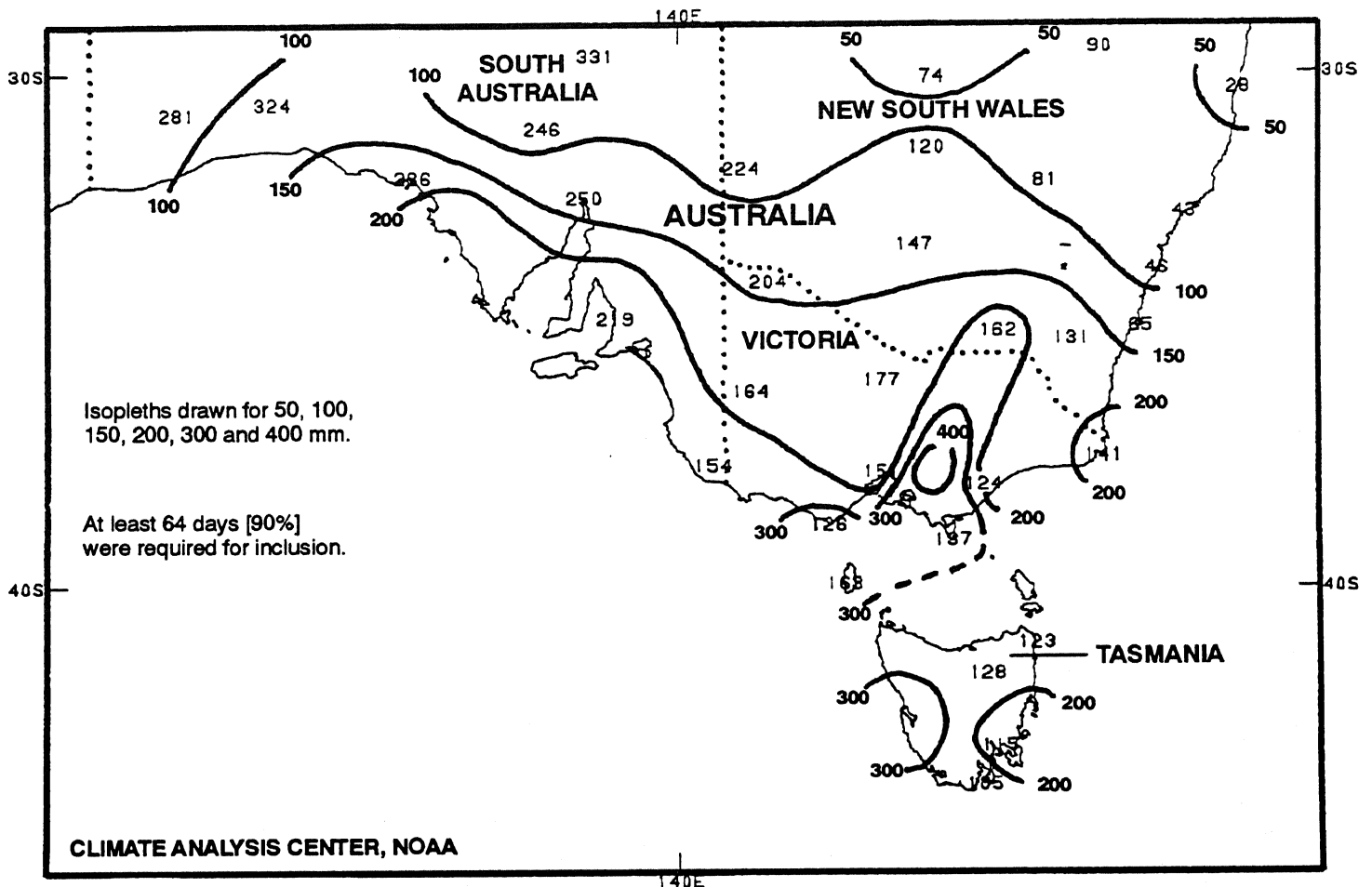
September 20 – October 10, 1992



GLOBAL CLIMATE HIGHLIGHTS FEATURE

PLOTTED VALUES: PERCENT OF NORMAL PRECIPITATION
CONTOURS: TOTAL PRECIPITATION (mm)

August 1 – October 10, 1992 [71 days]



NEARLY TWO AND A HALF MONTHS OF ABOVE NORMAL PRECIPITATION ARE OBSERVED IN SOUTH-CENTRAL AND SOUTHEASTERN AUSTRALIA. *The last half of the Southern Hemisphere summer and early autumn are typically quite dry in central South Australia, where normal precipitation totals for August 1 – October 10 are only about 35 mm. Amounts usually increase to the south and east, topping 200 mm along the immediate southern coast of Victoria and eastern portions of Tasmania. During 1992, however, a persistent pattern featuring abnormally high precipitation totals dominated the region. Between 2 and 3.5 times the normal amounts were measured in northwestern Victoria and much of southern South Australia, with totals of 200–435 mm observed from southeastern South Australia eastward across southern and central Victoria, extreme south-central New South Wales, and most of northern, central, and western Tasmania. In sharp contrast, abnormally low totals were recorded through northern and eastern New South Wales. To the north and west of the area depicted on the above map, normals for the period are so low that any significant precipitation tends to be reflected as a misleadingly large percentage of normal which is not climatologically significant.*

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF OCTOBER 4–10, 1992

The first full week of October was highlighted by torrential rains in the Southeast and wintry weather in portions of the Rockies and Great Plains. Strong thunderstorms generated copious amounts of rain across the Carolinas and Georgia on Thursday and Friday, with up to 9.5 inches measured in south-central South Carolina. Resultant flooding claimed three lives, closed numerous roads, and washed out bridges, according to press reports. On Sunday, flooding continued across northeastern Florida, closing up to 5 dozen roads in Clay County and forcing evacuations. Water levels on Black Creek approached record marks after rising 8 feet in 5 hours. Farther west, winter-like conditions prevailed across the northern and central Rockies and Plains. Snow blanketed parts of Colorado, Wyoming, Nebraska, and South Dakota, with up to 4 inches reported in the Black Hills. Strong wind gusts produced blowing snow in Wyoming and bitterly cold wind chills in Colorado. Subfreezing temperatures dipped as far south as northern Texas while readings plunged into the teens at numerous locations in the Rockies.

The week began with a strong low off the South Atlantic coast which generated heavy rain and lowland flooding in Georgia, Florida, and parts of the Carolinas. As the system tracked to the north, strong winds churned rough surf along North Carolina's Outer Banks and uprooted trees inland. Copious amounts of rain soaked portions of North Carolina on Sunday with over 4 inches measured at Charlotte. Elsewhere, the first winter storm of the season developed in the Rockies, dumping heavy snow on parts of Wyoming and Colorado, while unseasonably cool conditions yielded several record daily lows in central and southern Florida. Readings in the fifties at a few locations.

In the last half of the week, the storm in the Gulf moved into the nation's midsection generating heavy rain in portions of the northern Great Plains. In the Midwest, moist air ahead of the system fueled heavy thunderstorms from the southern Plains to the Northeast, producing heavy rain, hail, and strong winds. Up to 6 inches of rain fell near Vermillion, and several roads while tornadoes in

Oklahoma and Wisconsin, damaged a few homes. The storm system eventually pushed through the Great Lakes and into southern Canada while its trailing cold front swept into the eastern U.S., accompanied by strong thunderstorms. Farther west, unseasonably cold conditions spilled into the nation's midsection, yielding record daily lows in Arkansas and Louisiana as readings dipped into the twenties and thirties.

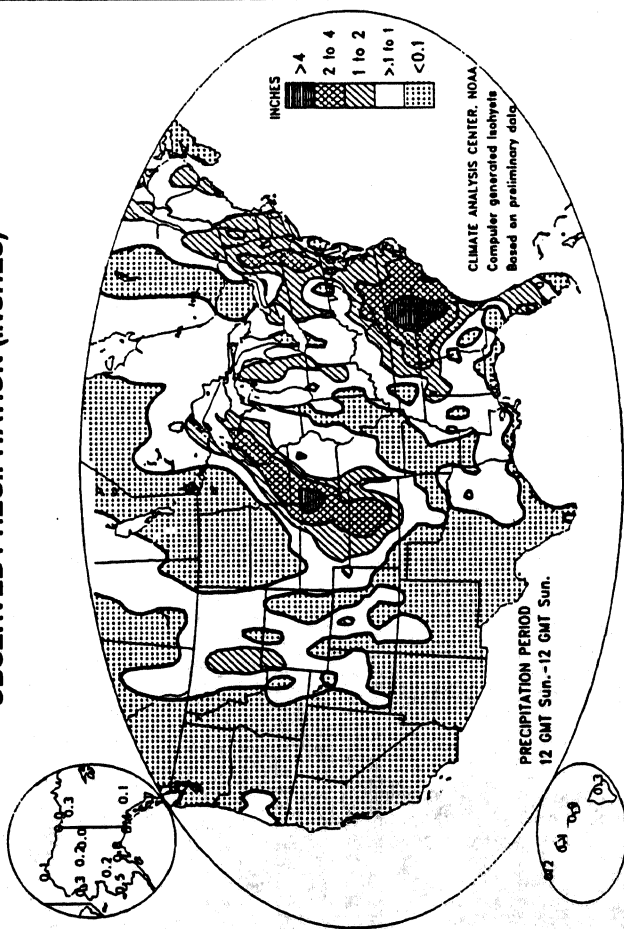
According to the River Forecast Centers, the greatest weekly precipitation totals (more than 2 inches) fell from the southern and middle Atlantic coast northward into central New England, on the central Plains, through the upper Midwest, and in southeastern Alaska. Light to moderate amounts were measured across most of the nation east of the Mississippi River Valley, eastern sections of the southern Plains, the northern and central Rockies, and the southern two-thirds of Alaska. Little or no precipitation was reported along the western sections of the Gulf Coast and southern Plains, the northern Plains, the southern Rockies, the remainder of the West, northern Alaska, and most of the Hawaiian Islands.

Warmer than normal conditions were confined to the Far West. Weekly departures between +4°F and +9°F were common in California and extreme western Nevada. Near to slightly above normal temperatures were observed across the southern half of Florida and the northern and southern Intermountain West. In Alaska, unusually mild weather swept into the northern third of the state, where weekly departures to +4°F were observed. Barrow reported a record daily high of 38°F on Tuesday.

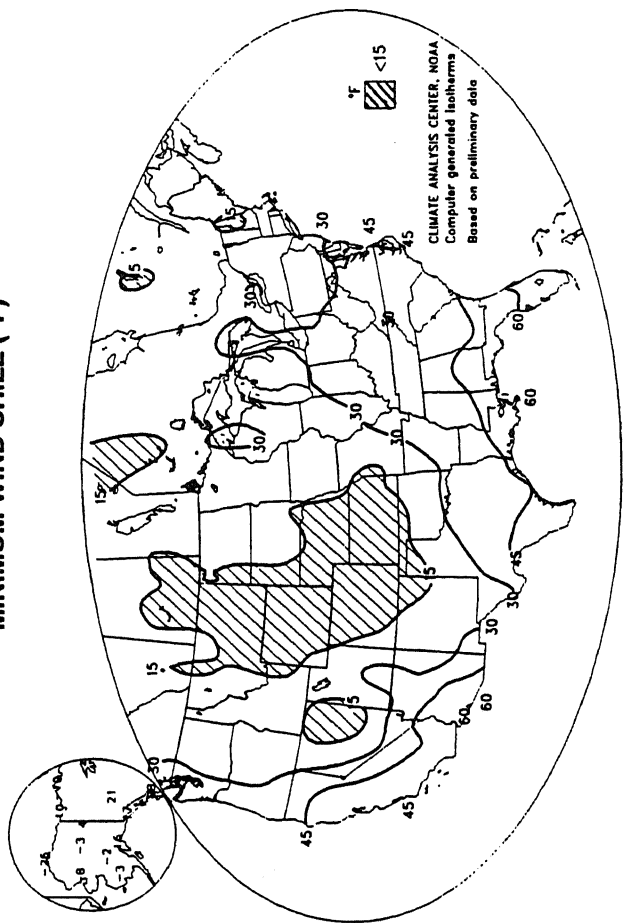
In contrast, unseasonably cold weather prevailed from the Great Basin eastward. Weekly departures of -4°F to -7°F were common in northern and central sections of the Rockies and Great Plains, through the middle Mississippi Valley, and from the southern Appalachians northeastward into northern New England. Departures down to -3°F were observed across the remainder of the contiguous U.S. In Alaska, subnormal temperatures dominated the southern two-thirds of the state, with weekly departures of -4°F reported at both Cordova and Ketchikan.

UNITED STATES WEEKLY CLIMATE CONDITIONS (October 4 – 10, 1992)

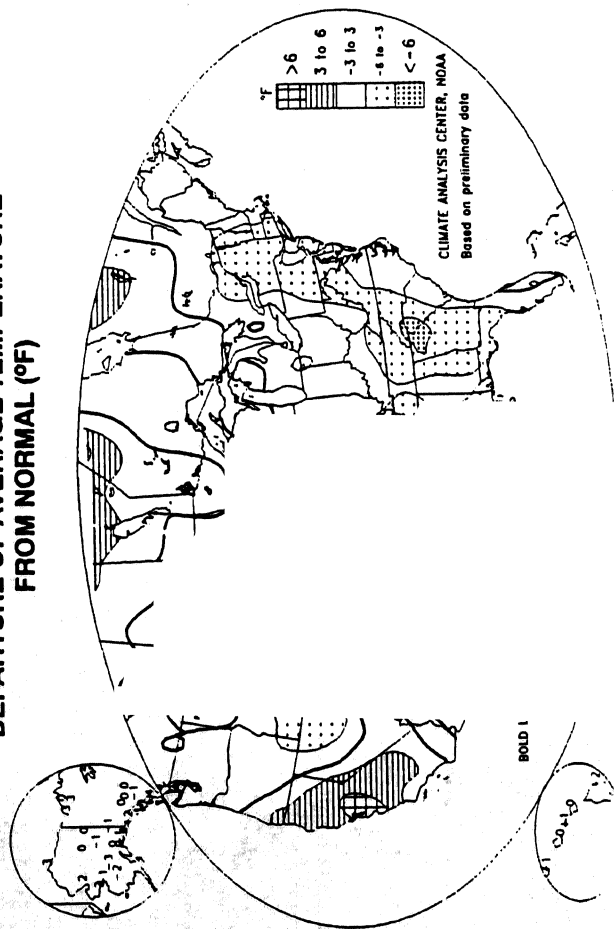
OBSERVED PRECIPITATION (INCHES)



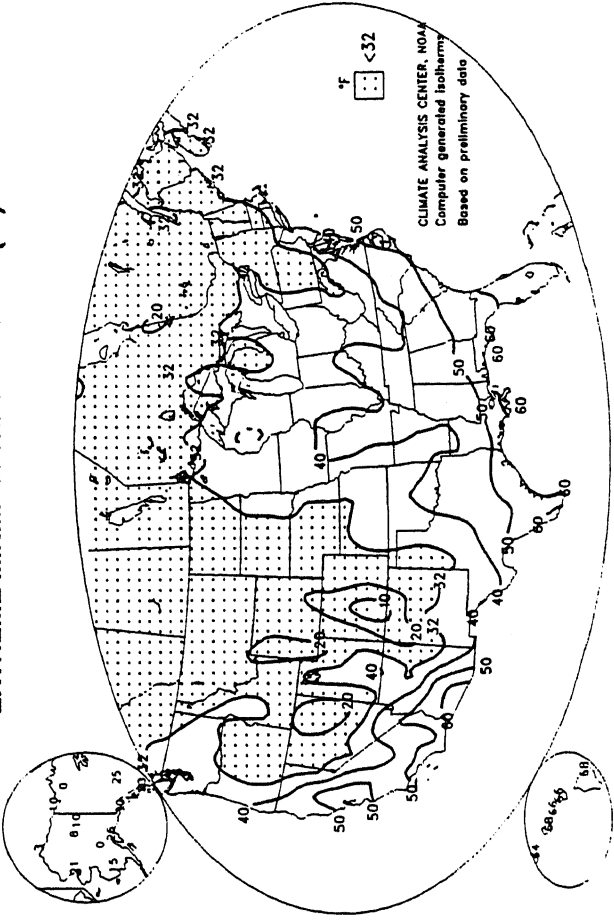
MINIMUM WIND CHILL (°F)



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

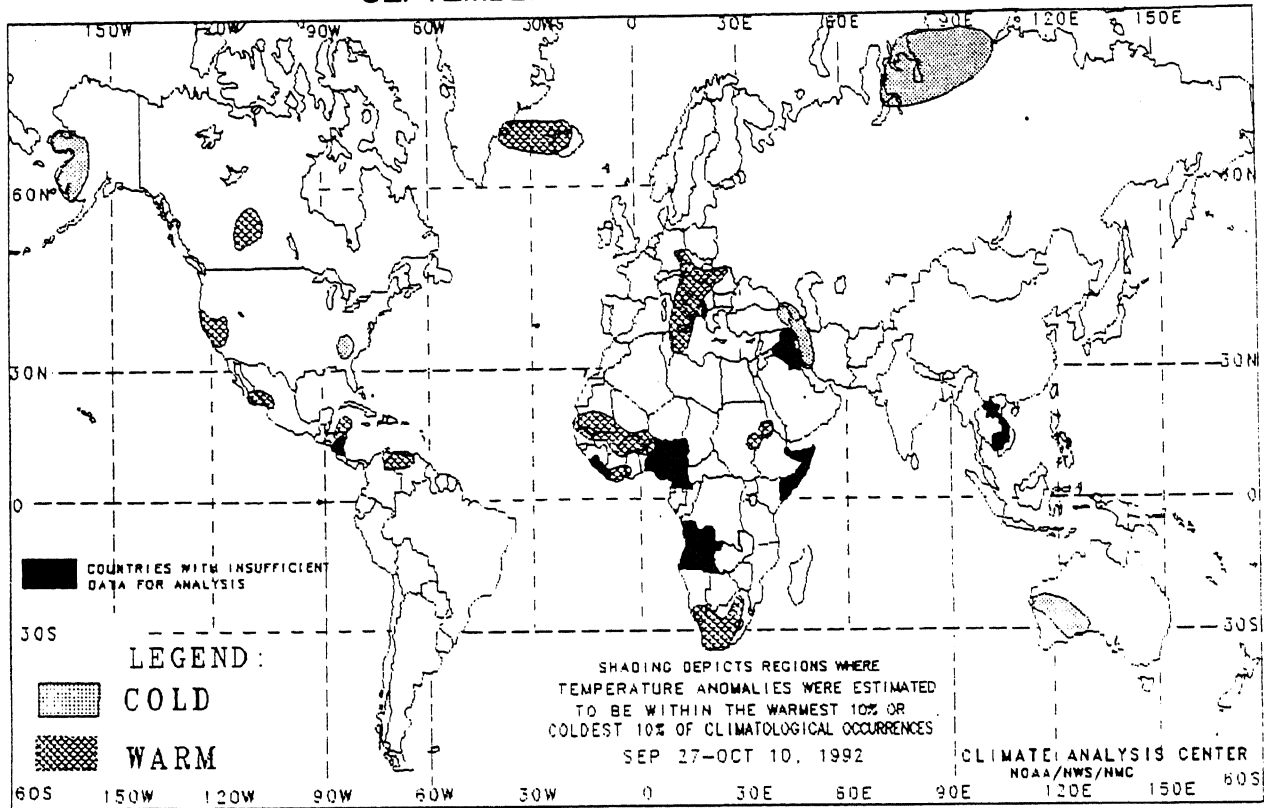


EXTREME MINIMUM TEMPERATURE (°F)



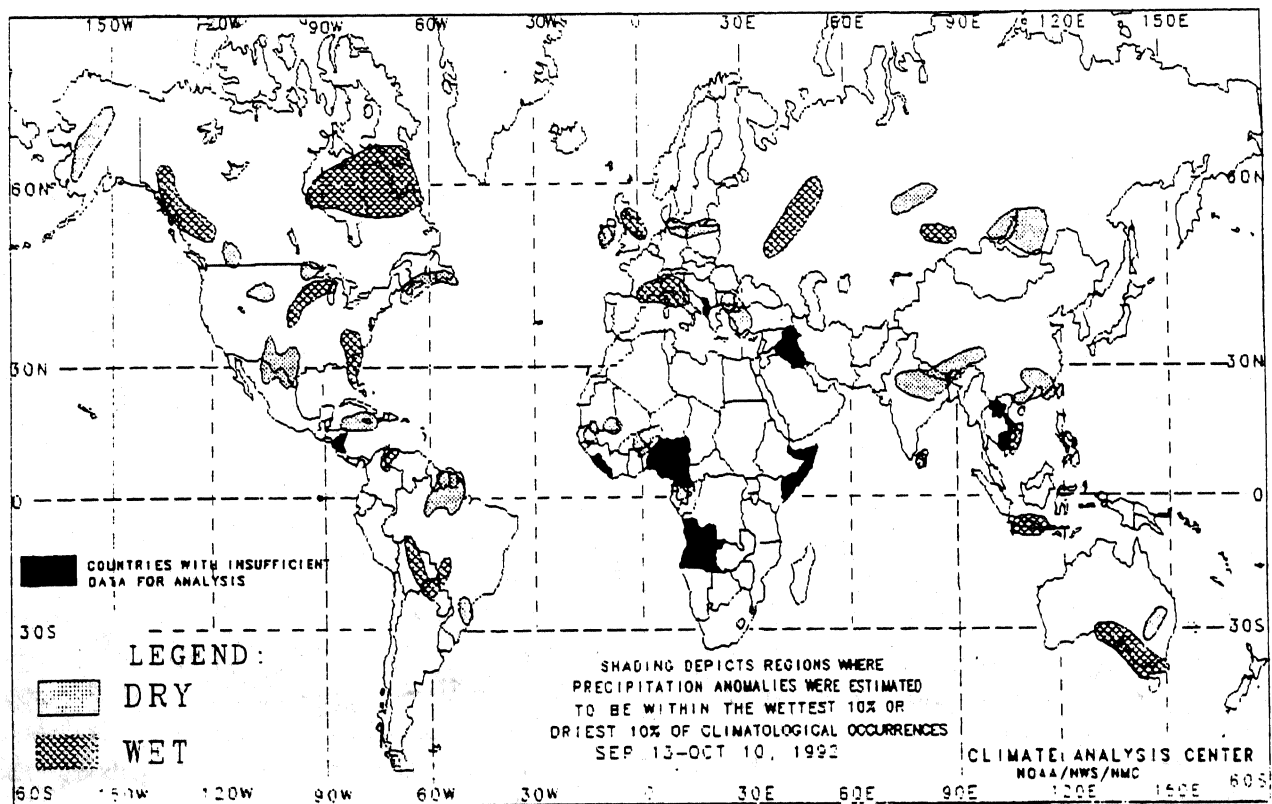
2-WEEK GLOBAL TEMPERATURE ANOMALIES

SEPTEMBER 27 – OCTOBER 10, 1992



4-WEEK GLOBAL PRECIPITATION ANOMALIES

SEPTEMBER 13 – OCTOBER 10, 1992



UNITED STATES MONTHLY CLIMATE SUMMARY

SEPTEMBER 1992

The month opened with a series of cold fronts that moved quickly through the northern tier of states, but stalled across the Southeast and southern Plains. Thunderstorms along one of the fronts generated hail four inches in diameter in Oklahoma and a few tornadoes in the central states. Over five inches of rain in three hours caused street flooding in Waycross, GA. Farther west, thunderstorms associated with a weak upper-level disturbance dumped small hail in southern Oregon, snarling traffic, while scattered rain showers across Idaho slowed the spread of wildfires, which had scorched hundreds of thousands of acres throughout the Far West. Rain changed over to snow in the higher elevations of Wyoming as unseasonably cool air moved from the Pacific Northwest to the central Plains. Most of the country experienced below normal temperatures during the first week of the month, with lows in the fifties as far south as southern sections of Mississippi and Alabama. Farther west, Hurricane Iniki, the most powerful hurricane to hit Hawaii this century, struck the island of Kauai with winds gusting to 160 mph, causing severe and widespread damage on the island. According to press reports, approximately 10,000 of Kauai's 21,000 homes and most of its 70 hotels were badly damaged.

During the second week of September, yet another cold front moved quickly into the southern Great Plains, middle Mississippi Valley, and upper Great Lakes. As a consequence, severe thunderstorms, accompanied by hail, strong winds, and heavy rain, battered the nation's midsection from Oklahoma northeastward to Ohio while torrential downpours soaked eastern Texas, the central Gulf Coast, and the Appalachians. As the front dissipated while pushing towards the East Coast, a new storm system spread locally heavy rains from southern Iowa to the upper Great Lakes. In central Alaska, portions of the Tanana Valley and Alaskan range received record September snowfall, with 37.6 inches burying Denali National Park.

Another cold front moving southeastward out of Canada spawned an outbreak of severe thunderstorms that brought large hail, heavy rains (up to 13 inches), and tornadoes to eastern North Dakota and northern Minnesota during the third week of the month. Intense thunderstorms also spawned tornadoes in northern Texas and eastern Oklahoma while rains of five to ten inches inundated portions of the Ozark Plateau, Tennessee Valley, and southern Appalachians. Unseasonably cold conditions persisted in Alaska, with single-digit temperatures establishing numerous new record daily lows in the central part of the state.

Late in the month, Tropical Storm Danielle lashed North Carolina's Outer Banks with heavy rains, rough surf, and strong winds before making landfall on the Delmarva Peninsula just south of Ocean City, MD. Although winds gusting to 60 mph did little damage, wind-churned seas and heavy rains caused widespread beach erosion and coastal lowland flooding. The storm claimed at least one life when a sailboat was swamped by high seas off the New Jersey coast. Danielle slowly dissipated as it moved inland over northeastern Maryland and Pennsylvania, although a few inches of rain were generated by the system from the mid-Atlantic Coastal Plain northward to southern New England.

As much as five inches of rain pushed many rivers to near flood stage across central and northern Indiana, and rain mixed with snow was reported in north-central New York State as September drew to a close. Unseasonably hot and dry weather engendered more wildfires in eastern Washington, southern Oregon, and parts of California as several new daily high temperature records were established in the Great Basin, Desert Southwest, and Far West. Alaska remained abnormally cold, with subzero readings reported in some of the interior valleys.

According to the River Forecast Centers, heavy rains (8 to 17 inches) inundated the central Plains from Texas northeastward to Wisconsin and Indiana. In addition, scattered heavy amounts were reported across the Southeast (figures 1 and 2). Based on preliminary calculations by the National Climatic Data Center (NCDC), three of the nine regions reported above median precipitation, with the Central and East North Central experiencing the 19th and 29th wettest September, respectively, since records began in 1895 (page 9).

Subnormal precipitation was measured across much of the western half of the country (figures 1 and 2). The six regions from the Plains and lower Mississippi Valley westward reported below median totals, with the Southwest and West experiencing the 5th and 8th driest September on record, respectively (page 9). Nationally, September 1992 ranked as the 31st driest such month on record.

An abnormally warm September was observed through most of the western half of the country, with departures above +4°F reported in parts of Nevada, California, and central Texas (figures 3 and 4). According to NCDC, Arizona endured the sixth warmest September since records began in 1895, but only six other states were in the upper (warmest) third of the 98-year distribution (page 11). Four NCDC regions reported above median temperatures, with the West and Southwest ranking 21st and 23rd warmest. Hawaii was also atypically mild, with temperatures averaging up to 3°F above normal, as were the central and northern portions of Maine.

Unseasonably cool weather prevailed across much of the country from the Rockies to the Appalachians, with departures dipping below -4°F in portions of Missouri (figures 3 and 4). Five NCDC regions reported below median temperatures, with the Central and East North Central regions experiencing the 22nd and 24th coldest September in the last 98 years (page 11). In addition, four states (AR, IA, MI, and MO) ranked among the lowest (coldest) 20 such months in the 98 years of record. Nationally, September was very close to the median value, ranking as the 48th warmest such month on record. The most extreme conditions were reported through Alaska, where temperatures averaged as much as 15°F below normal. Several locations in the state established new September records for lowest average and/or lowest extreme temperatures during 1992 (page 12). Note that neither Alaska nor Hawaii are figured into the nationally averaged temperature and precipitation index calculations.

PRECIPITATION PERCENTILES

SEPTEMBER 1992

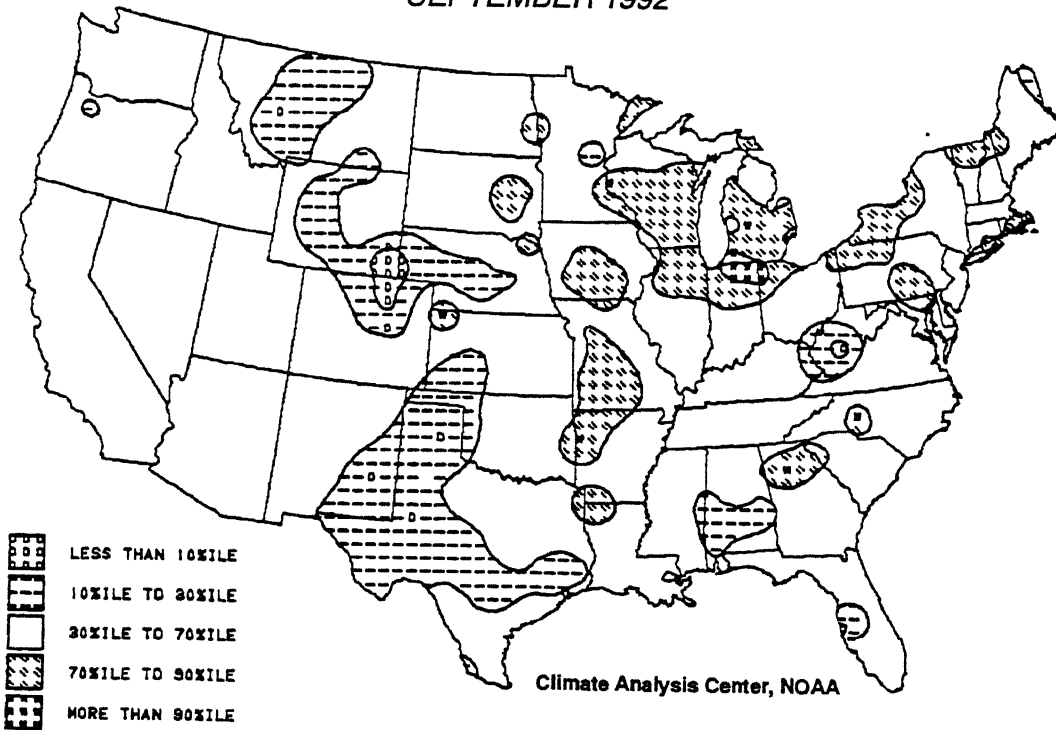


FIGURE 1. September 1992 Precipitation Percentiles. A wet month ($>70\%$ ile) was observed across the Great Lakes and scattered sections of the eastern Plains, with September totals among the wettest 10% of the historical (1951–1980) distribution in northern Indiana. Climatologically significant dryness was limited to the Rockies, western High Plains, and southern Plains.

PERCENT OF NORMAL PRECIPITATION

SEPTEMBER 1992

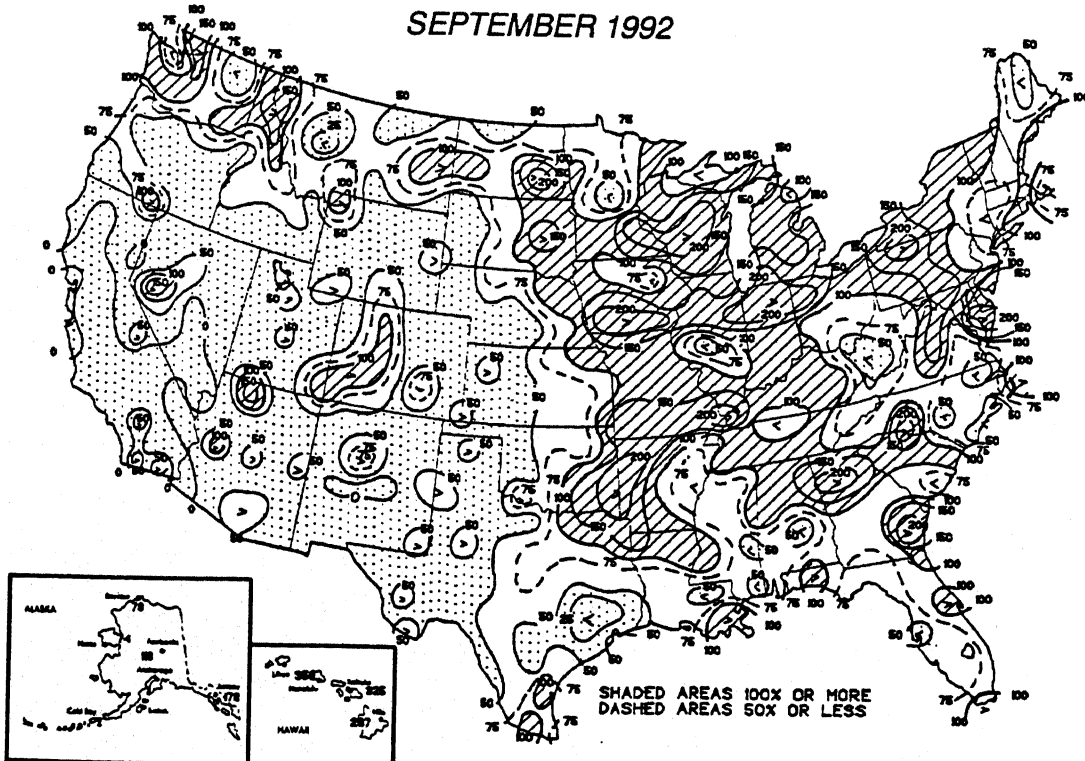
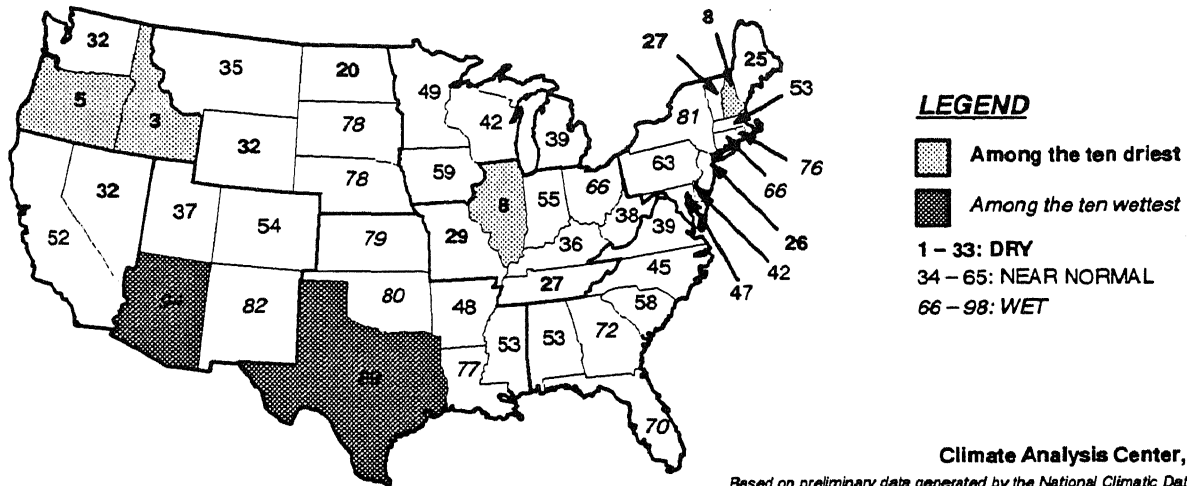


FIGURE 2. September 1992 Percent of Normal Precipitation. Hatched areas received above normal precipitation, and dotted areas reported under half of normal. Above normal precipitation dominated northern portions of Washington and Idaho, the eastern Plains, the Corn Belt, the southern Appalachians, the Great Lakes, and parts of the mid-Atlantic. In contrast, unusually low amounts fell on most of the western half of the nation.

NINE-MONTH HISTORICAL PRECIPITATION RANKINGS BY STATE JANUARY – SEPTEMBER 1992

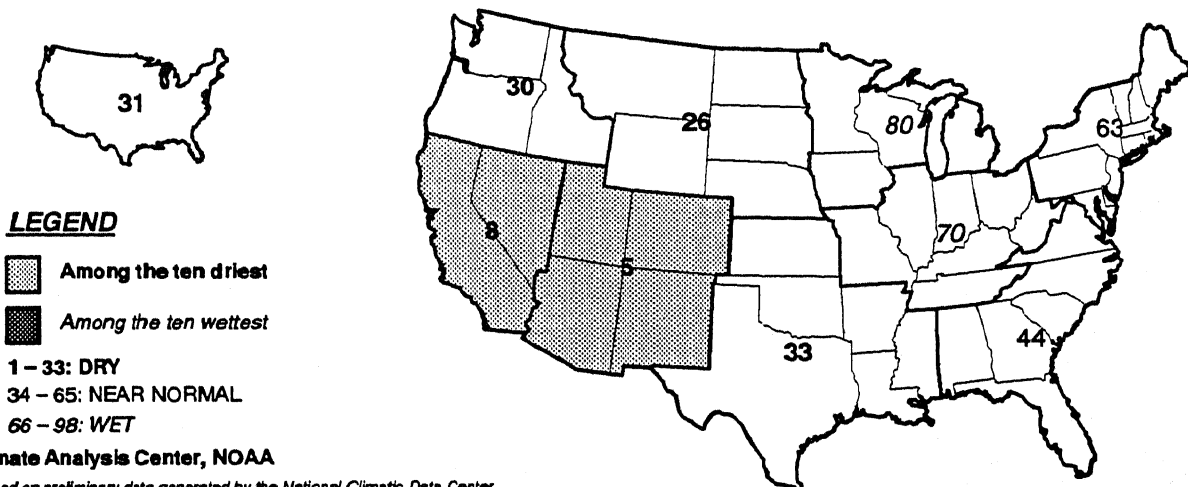


Climate Analysis Center, NOAA

Based on preliminary data generated by the National Climatic Data Center

This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.

HISTORICAL PRECIPITATION RANKINGS BY REGION AND NATION SEPTEMBER 1992

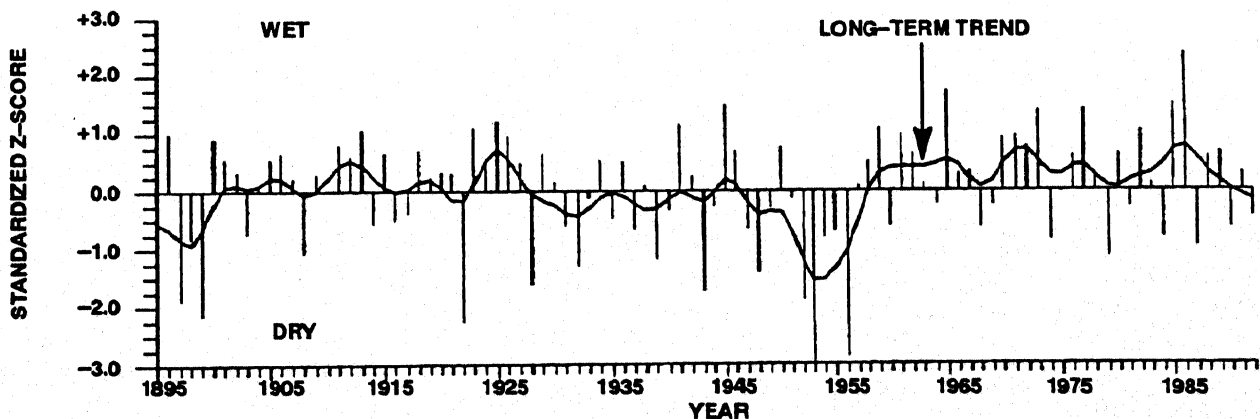


Climate Analysis Center, NOAA

Based on preliminary data generated by the National Climatic Data Center

This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.

U. S. NATIONAL NORMALIZED PRECIPITATION INDEX SEPTEMBER 1895 – 1992

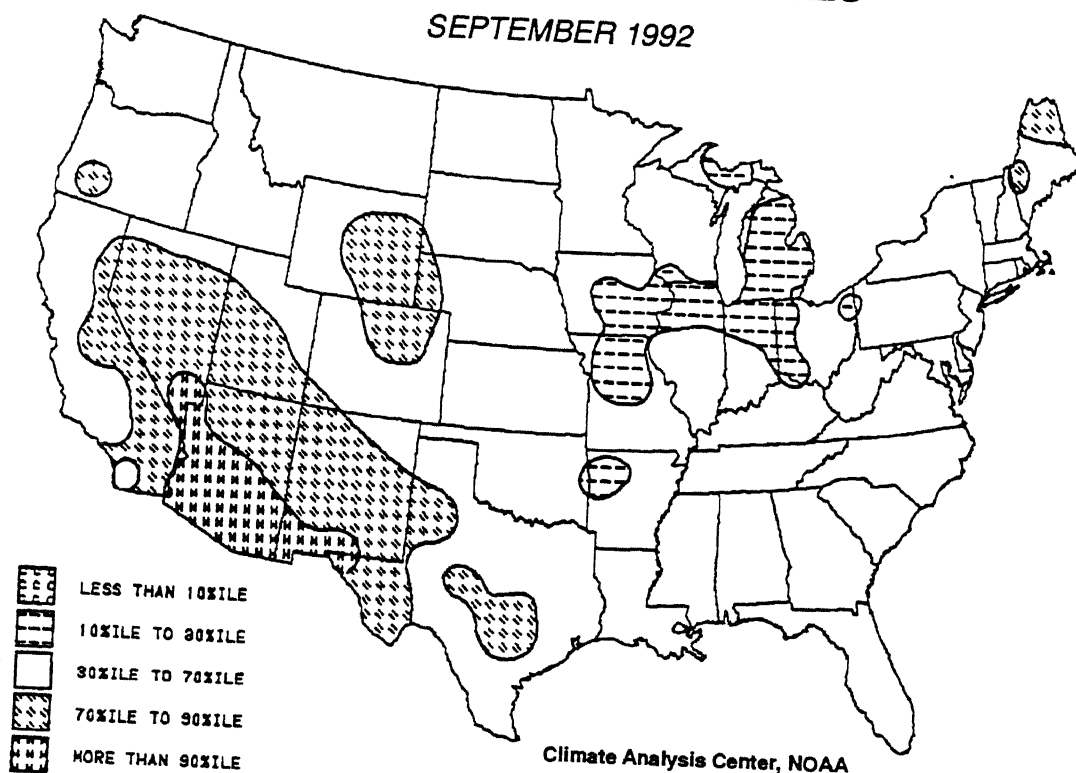


National Climatic Data Center, NOAA

NATIONAL MEAN SEPTEMBER PRECIPITATION INDEX, as computed by the National Climatic Data Center. September 1992 ranked as the 31st driest September on record. This index takes local normals into account so that regions with large precipitation amounts do not dominate the index value.

TEMPERATURE PERCENTILES

SEPTEMBER 1992

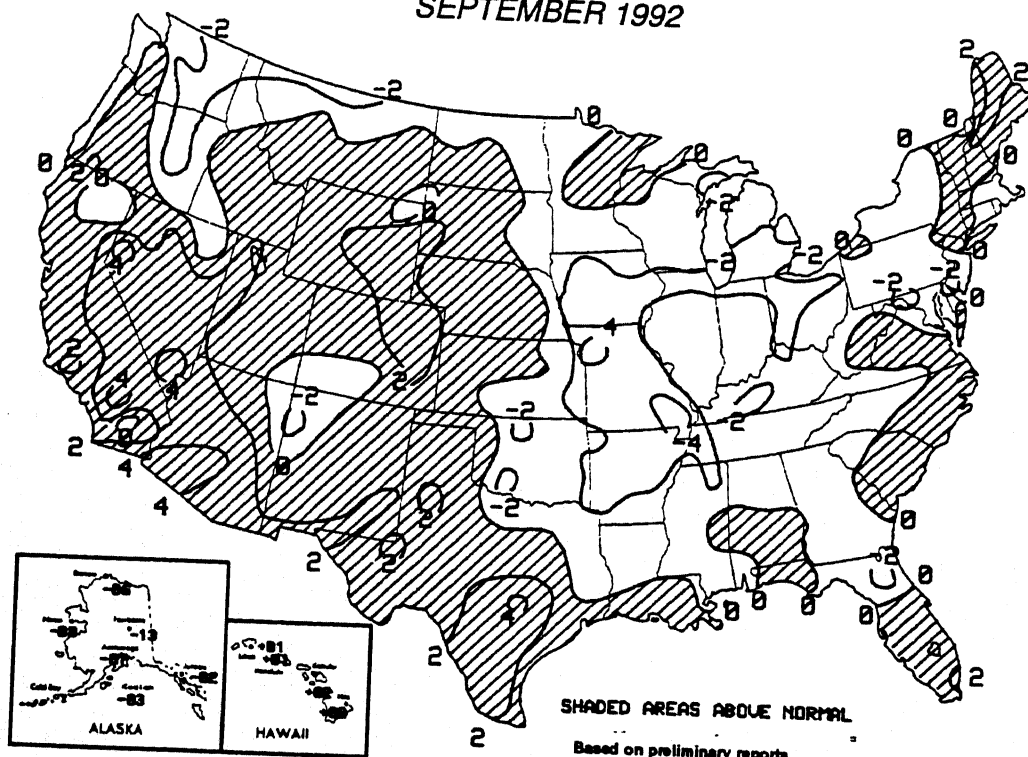


Climate Analysis Center, NOAA

FIGURE 3. September 1992 Temperature Percentiles. Unseasonably warm weather (>70%ile) prevailed across the desert Southwest, Great Basin, and central High Plains, with much of Arizona and parts of New Mexico and Nevada in the warmest 10% of the historical distribution. Abnormally cold conditions (<30%ile) were limited to portions of the Great Lakes and Mississippi Valley.

DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

SEPTEMBER 1992

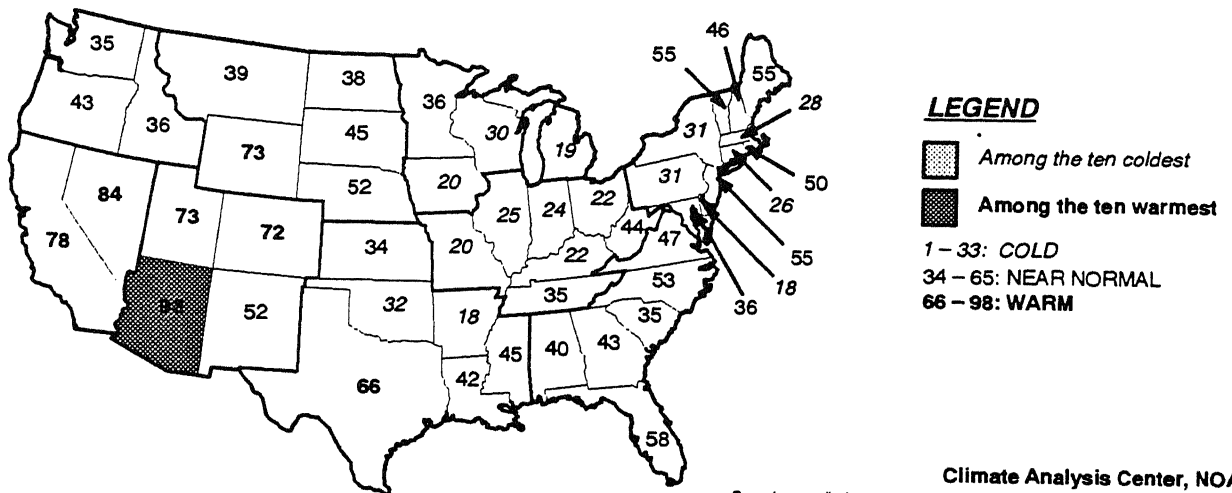


SHADED AREAS ABOVE NORMAL

Based on preliminary reports

FIGURE 4. September 1992 Departure of Average Temperature from Normal (°F). Isopleths Drawn for -4°F, -2°F, 0°F, +2°F, and +4°F. Warmer than normal conditions dominated much of the western half of the nation, with departures above +4°F scattered across the desert Southwest. Below normal temperatures prevailed through the eastern Plains and Corn Belt, with departures below -4°F covering parts of Missouri.

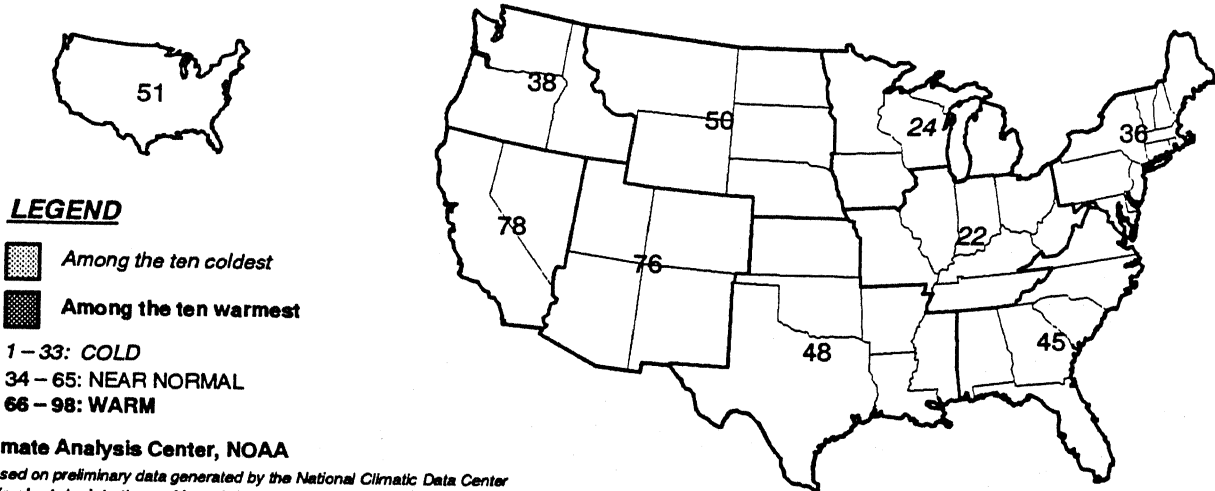
HISTORICAL TEMPERATURE RANKINGS BY STATE SEPTEMBER 1992



Climate Analysis Center, NOAA

This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.

HISTORICAL TEMPERATURE RANKINGS BY REGION AND NATION SEPTEMBER 1992

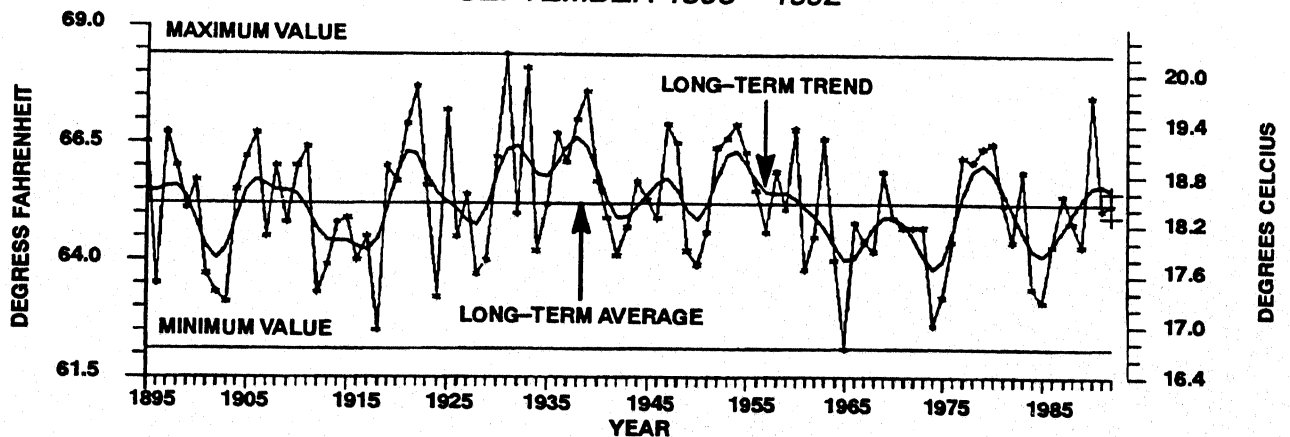


Climate Analysis Center, NOAA

Based on preliminary data generated by the National Climatic Data Center

This chart depicts the ranking of the specific parameter, as measured during the period indicated, with respect to all other such periods on record since 1895.

U. S. NATIONAL TEMPERATURE SEPTEMBER 1895 - 1992



National Climatic Data Center, NOAA

NATIONALLY AVERAGED SEPTEMBER TEMPERATURES, as computed by the National Climatic Data Center. Above normal temperatures in the West and Southwest compensated for cooler than normal conditions in the eastern half of the country, yielding a near median value.